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ABSTRACT

This practicum was designed to enhance the school and home learning environments of 20 neurologically and perceptually impaired students in kindergarten through sixth grade. Participating students received daily regular class and resource room instruction. Needs assessment measures revealed that little learning characteristic data were available to teachers and parents of classified students. The absence of learning style data within the instructional strategies component of the students' individualized educational programs (IEP's) impeded the development of harmonious home and school learning environments. Self-report and classroom observational instruments provided the nucleus of the chosen solution. Learning style data obtained from these sources were incorporated into the instructional strategies component of the IEP's. Teachers and parents of student participants received individualized instruction in a model learning style environment. Instructional materials and activities conducive to students' individual learning styles were systematically integrated into the classroom and home learning environments. Results showed increases among students in task-attempted and task-completed objectives. Positive program results were further substantiated by a decrease in behaviors inappropriate to the classroom setting. Attainment of teachers' objectives was reflected in an increased use of quiet work areas, learning stations, and moblility experiences within the classroom environments. Parent participants successfully monitored students' completion of activities within home learning environments. It was concluded that the revised instructional strategies component of the IEP's helped develop an organizational perspective in providing services to classified students. Related materials, including instruments and data, are appended. (Author/RH)

PRACTICUM REPORT

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NOVA UNIVERSITY

UTILIZATION OF LEARNING STYLES DATA IN THE DEVELOPMENT OF INSTRUCTIONAL STRATEGIES FOR RESOURCE ROOM STUDENTS

BY

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Submitted to the Faculty of Nova University
Early Childhood Education Program
in Candidacy for the Degree of

DOCTOR OF EDUCATION

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ABSTRACT

Utilization Of Learning Styles Data In The Development Of Instructional Strategies For Resource Room Students
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Descriptors: Cognitive Style/Educational Research/Elementary Secondary Education/Personality Traits/Student Needs/Student Teacher Relationship/Teaching Methods/Learning Style Inventory/Test Validity/Learning Theories/Models/Learning Processes/Learning Modalities/Student Characteristics/Teaching Styles/Memory

This practicum was designed to enhance the school and home learning environments of 20 Neurologically and Perceptually Impaired students in grades k through 6. Students participating in this program received regular class and resource room instruction daily. Needs assessment measures revealed that a dearth of learning characteristic data was available to the teachers and parents of classified students. The absence of learning style data within the Instructional Strategies component of the students' Individualized Educational Programs (IEPs) impeded the development of harmonious home and school learning environments.

Self-report and classroom observational instruments provided the nucleus of the chosen solution. Learning style data obtained from these sources was incorporated into the Instructional Strategies component of the students' IEPs. Teachers and parents of the student participants received individualized learning style based instruction in a model learning style environment. Instructional materials and activities conducive to the students' individual learning styles were systematically integrated into the classroom and home learning environments.

Student participants' results evidenced positive increases in task attempted and task completed objectives. Positive program implementation results were further substantiated by a decrease in behaviors inappropriate to the classroom setting. Attainment of teacher related objectives was reflected in an increased utilization of quiet work areas, learning stations and mobility experiences within the classroom environments. Parent participants successfully monitored the students completion of activities conducive to individual learning styles within the home learning environments. The employment of recommendations provided by the revised Instructional Strategies component of the IEPs contributed to the development of an organizational perspective in providing services to classified students.

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Chapter 1

INTRODUCTION

A. The Community

Belmar is a central New Jersey coastal community located in southern Monmouth County. This seashore town is surrounded by water on three sides and comprises an area of 1.1 square miles. The Shark River serves as both the northern and western borders of Belmar. The eastern border of the community is the Atlantic Ocean.

The first people of this geographic setting were the Lenni Lenapi Nation of the Algonquin Race. The translated meaning of Lenni Lenapi is original people. Migratory Indians also inhabited the area of Belmar as a summer resort from the spring to fall each year. During the Revolutionary War a salt works was located on the south shore of the Shark River. The salt works was destroyed by British soldiers before the end of the war.

Belmar was originally named Ocean Beach and was purchased by the Ocean Beach Association on August 31, 1872 by forty-one persons (Roper, 1978). The section purchased consisted of the present

twelve main streets of the town which extend from the eastern border of the Atlantic Ocean to the western border of the Shark River. By an act of the New Jersey Legislature the Association was incorporated on March 13, 1873. The name of Belmar was given to the town on May 14, 1889 (Roper, 1978).

The early white settlers of this community built small homes which they called bungalows. During the winter months when work was scarce these early settlers banned together to build additional bungalows which were used for renting during the summer months. Bungalows still serve as a viable source of yearly income for many of the residents of the borough.

Fish, wild game and corn were a source of sustenance to these early white settlers and to the Lenni Lenape, the original people of this area. Swans, geese and ducks are still most plentiful in outlying areas of the community. A limited number of present day residents make their living from the sea. Several large fishing boats leave daily from the Belmar Marine Basin which is located on the Shark River. Summer visitors frequently fish from party boats or charter private boats for an entire day.

The downtown section of the town was revitalized during the early 1960's. This section includes clothing stores, a theatre, a hardware store, a variety store, two banks, and a variety of speciality shops. Belmar is particularly noted for its fine restaurants specializing in sea food.

Belmar's total population is 6,771 (U. S. Census Bureau, 1980). The community's population is 93.0% White and 5.7% Black. The 1979 mean family income was $20,772 for the borough of Belmar (U. S. Census Bureau, 1980).

The Belmar Elementary School services 460 kindergarten through grade 8 (k-8) elementary students from the communities of Belmar and South Belmar. South Belmar, a community to the south of Belmar, contracts with the Belmar Board of Education and sends all of its pupils k-8 to the Belmar Elementary School. The town of South Belmar is 0.20 square miles and has a total population of 1,566 (U. S. Census Bureau, 1980). U. S. Census Bureau statistics for 1980 indicate that South Belmar's White residents account for 77.6% of the population while Black residents constitute 21.8% of the community's population. South Belmar's 1979 mean family income was $19,737 according to U. S. Census Bureau statistics.

Traditionally, an influx of winter renters each September and October has occurred within Belmar and South Belmar. These winter renters, who usually leave before May 15th, have greatly contributed to the transient nature of the communities. Summer rentals begin before Memorial Day, although the school year usually extends until late June. Both Belmar and South Belmar are highly transient communities. The school experienced a 25% turn over in student enrollment during both the 1981-1982 and the 1982-1983 school years. Although the school has experienced a decline in student enrollment during recent years, September of 1983 witnessed a 7% increase in student enrollment which remained stable throughout the school year.

The Belmar Elementary School is located one block south of the town's shopping district. The school's spacious and well cultivated grounds comprise one square block. The school property includes playground areas for both primary and upper grade students.

The school building was erected in 1910 and was enlarged and improved in 1929. Offices, classrooms, a cafeteria, a gymnasium and an auditorium are contained in the three story structure. The gymnasium, cafeteria, corridors and several class-

rooms have been remodeled within recent years. During the summer of 1983, an extensive number of classrooms were renovated. A modular unit, adjacent to the main building, was purchased by the Belmar Board of Education in 1970. Presently this building is being utilized for kindergarten and music instruction.

The Superintendent and the Supervisor of Instruction represent the on-site administrative personnel for the Belmar Elementary School. These individuals are responsible for coordinating the efforts of thirty-seven professional staff members. The school's teaching staff consists of regular classroom, special subject, supplemental, resource room and self-contained special education teachers.

The Child Study Team consists of a learning disabilities consultant, a school psychologist, and a social worker. The Child Study Team, employed by the district on a part-time basis, is responsible for evaluating and classifying students for appropriate special education programs.

Students within the district who are mainstreamed to regular classes are serviced by a kindergarten through grade 6 (k-6) and upper elementary resource room teacher. The resource room teachers work co-operatively with the regular classroom teachers who have special educa-

tion students mainstreamed to their classes. Communication between the resource room teachers and regular classroom teachers is essential in order to implement the educational programs outlined within the students' Individualized Educational Programs.

B. Writer's Role, Responsibility, and Work Setting

The writer is employed by the Board of Education of the borough of Belmar in the capacity of resource room teacher. A stipulation of PL 94-142, the Education for All Handicapped Children Act of 1975, mandates that students receive instruction within the least restrictive environment. Mainstreaming, a process which integrates exceptional children into regular classroom settings, accomplishes this legal requirement. The mounting impetus of the mainstreaming process within the district and an increase in the number of learning disabled students requiring services in the lower elementary grades resulted in the development of a k-6 resource room. The assignment of students to a k-6 resource room became effective in September of 1983.

The writer's responsibilities as a resource room teacher involves servicing learning disabled

students k-6 enrolled in regular classes within the district. Consequently, each student serviced by the writer also receives instruction in a second educational environment for a major portion of the day. The writer is responsible for providing individualized instruction primarily in the areas of reading and math for a maximum of 2 hours daily within the resource room setting. The number of children comprising an instructional group does not exceed 5 at any one time.

The resource room contains a variety of instructional materials designed to facilitate learning through the students' sense modalities. The environment of the resource room provides distinct work and study settings designed to enhance individualized and independent learning.

The writer communicates with the Child Study Team, classroom teachers and parents concerning the social/emotional and academic functioning of students assigned to the resource room. The writer contributes observational and performance data relative to student progress and necessary for the development of Individualized Educational Programs (IEPs). This educational prescription, IEP, provides the writer with performance goals and objectives

for monitoring student progress.

The writer has developed multisensory learning packages for incorporation into the educational programs of the students assigned to the k-6 resource room. Self-developed and commercially prepared materials were utilized in designing the multisensory learning packages.

Chapter II

STUDY OF THE PROBLEM

A. Problem Statement

In September of 1983, twenty special education students classified as either Perceptually Impaired or Neurologically Impaired were mainstreamed to regular classes in Grades 1-6. Each student's Individualized Education Program stated the special services which would be provided and the extent to which the child would be able to participate in the regular class program.

In accordance with PL 94-142 each classified student's IEP contained the following data: 1) educational functioning levels 2) goals and specific objectives 3) a statement describing the planned educational program 4) the initiation date of the planned educational program 5) the projected date for future evaluative procedures (N.J.A.C.6:28-1.1 et seq.) Although the information provided by the IEP was in compliance with PL 94-142, organizational constraints detracted from the effectiveness of this educational document. There was an obvious lack of individual learning characteristic data available within

the Instructional Strategies component of the Individualized Educational Program. Since the purpose of the Instructional Strategies component is to assist teachers in providing an appropriate delivery of services to the student, this component did not have a positive impact on the educational programs of the resource room students. Teachers verbalized frustration in attempts made to meet the individual educational and social/emotional needs of mainstreamed students.

The problem that this practicum addressed was the need to obtain learning styles data for incorporation into the students' IEPs. The absence of this data prevented the resource room and classroom teachers from creating congruous work and study environments. Due to the unavailability of learning styles data, appropriate learning materials and instructional strategies conducive to the educational needs of resource room students were not being systematically integrated into the classroom environments. Consequently, educational planning lacked an organizational perspective. An individualistic as opposed to organizational perspective relative to educational planning is not in accord with the phi-

losophy of the Individualized Educational Program.

B. Documentation of the Problem

In September of 1983, the writer reviewed the Individualized Educational Program of each resource room student. At this time, there was noted an obvious lack of highly individualized data within the Instructional Strategies component of the IEP. The recommendations which were provided lacked any elaboration (procedures, techniques or materials) necessary for implementation by the teacher within the classroom environment.

Subsequent to this investigation, the writer met individually with the teacher of each child assigned to the resource room. These informal meetings revealed the following: 1) teachers had not received copies of the mainstreamed students IEPs 2) teachers were experiencing frustration in meeting the individual learning needs of resource room students 3) when provided an opportunity by the writer to review the students' IEPs, teachers expressed a need for more detailed data pertaining to the students' individual learning characteristics.

Prior to developing a needs assessment instru-

ment, the writer reviewed the Learning Style Inventory Primary Version (Perrin, 1983). A total of twelve items were selected from the inventory which corresponded to the annotations extracted from the writer's initial review of the students' IEPs in September of 1983. A questionnaire was developed by the writer and administered to the teachers of resource room students which further substantiated the need for inclusion of learning styles data within the Instructional Strategies component of the IEP (Appendix A). The teachers' ratings relative to the significance of the twelve selected items is provided (Appendix B).

During September and October of 1983, the writer visited the regular class settings which served as the primary learning environments for the resource room students. These informal visitations provided evidence which indicated that the identified students were not receiving individualized instruction involving crossmodal materials.

In order to conduct a more efficient and objective observation of the classroom learning environments, the writer referred to a book of observational techniques (Carrol, 1975). After a thorough reading of this book, the writer developed a rating scale for utilization as both

pre-implementation and post-implementation evaluations of the regular class learning environments (Appendix C). An analysis of the data further concluded that individualized educational prescriptions had not provided the guidelines necessary for the development of environmental conditions and instructional materials conducive to the individual learning characteristics of the mainstreamed students. The writer refers the reader to the Systematic Observational Data Of Classroom Environment Pre-Implementation/Post-Implementation Comparison (Appendix D).

A Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting (Appendix E) was developed by the writer. Five items were selected which revealed task oriented behaviors demonstrated by students both prior and subsequent to implementation. The writer extracted the five items listed in this observational worksheet during informal meetings with classroom teachers. Teachers had expressed these items as primary indicators of desired classroom behaviors.

C. Causes of the Problem

The reduced availability of Child Study Team members had depreciated the quality

of educational services available to classified students. In addition to obtaining psychoeducational data, the responsibilities of the Child Study Team include coordinating the development of each classified student's Individualized Educational Program. Since the IEP process is governed by specific guidelines, temporal constrains and accountability demands had detracted from the uniqueness of this educational document. Concomitantly, there was an increase in the number of students being referred for evaluation by this multi-disciplinary team. These circumstances, which detracted from the accessibility of Child Study Team members for advisement and planning, were resultant of budgetary reductions.

The writer noted that teachers, frustrated in attempting to meet the individual needs of the identified students, over attributed inferior academic performance to the influences of learning deficits. The writer's position on this finding is in agreement with researchers (Stott, 1978; Dunn and Dunn, 1978; Carbo, 1980; Douglass, 1979; Trautman, 1979; and Price et al., 1977). According to these researchers, too much emphasis in the field of learning disabilities has been placed on learning deficits and not enough attention has been directed toward un-

derstanding the interdependence of organismic and environmental factors in the learning process.

Hunt (1981) makes a fundamental appeal for describing students in terms of learning style. The student performance data which was provided within the Individualized Educational Program is readily available to teachers through informal testing and standardized test results. The writer acknowledged the importance of this data while further acknowledging the need to provide teachers with student learning style data that could be readily utilized in planning educational programs for resource room students.

D. Related Literature

A review of the literature revealed that learning style, a student's preferred way of learning, is a crucial consideration in educational decision making. Although more success can be achieved within environments that are consistent with individual learning styles, most educational environments have devoted limited attention to the topic.

Researchers and authors have defined learning style as a phenomenon that (a) var-

ies among individuals (b) is identifiable, and (c) requires complementary instructional methodology and/or teaching style (Dunn et al., 1977). Exploratory research conducted by Dunn (1981) demonstrated that each person, regardless of age, socioeconomic status, or I.Q., learns differently from others. The study postulated that how an individual learns depends upon environmental, emotional, sociological, biological, and psychological inclinations.

Self-report learning style inventories enable both teachers and students to become aware of the organismic and environmental factors involved in the learning process. Current research concludes that elementary students are capable of identifying individual learning styles.

Hunt's research stressed the importance of the practitioner's utilization of informal observational techniques in designing conditions contributory to learning efficiency. According to Hunt (1981), it is the teacher's disciplined trial and evaluation of results that should decide the amount of structure individual students need in order to learn efficiently. Hunt postulates that learning

styles and their corresponding matching models provide an excellent opportunity to develop a reciprocal relationship between psychological theory and educational practice.

Hunter (1979) has emphasized the need for informal diagnosis. Hunter states, "Informal diagnosis yields bountiful information at the moment it is needed, although the information may be less accurate than the results from formal diagnosis." In view of this research, the writer found it difficult to consider educational programs individualized which were designed and implemented in the absence of both formal and informal learning style data.

The following comment by Gagne (1977) illustrates the importance of the practitioner's employment of formal and informal data within the learning environment: "The essential task of the teacher is to arrange the conditions of the learner's environment so that processes of learning will be activated, supported, enhanced and maintained."

Researchers Schmeck and Lockhart (1983) have reviewed the work of Cattell and Eysenck in the field of

personality psychology. Their report indicates that Cattell and Eysenck have employed sophisticated statistical methods in defining the introversion-extraversion personality construct. The application of this theory bears direct implications for those practitioners who are involved in designing classroom learning environments. These researchers cautioned that since extraverted students do not sit quietly and are likely to pursue stimulating activities that disrupt the classroom, they may be mistakely labeled hyperactive. Conversely, introverted children may be viewed as ideal students because they demonstrate desired behaviors in the classroom. However, introverted children possess a need to study alone and may become over-stimulated by intense exposure to others. Being mindful that the introversion-extraversion construct is a continuum rather than a dichotomy, the writer extracted from this theory the importance of designing the physical environment and structuring the instructional tasks to provide the maximum conditions for learning by the individual child.

Farley (1961) has shown that students

who are extraverted need more stimulation and learn faster through an inductive approach. Introverted students require less stimulation and learn faster through the deductive approach.

Shavelson (1973) has suggested that decision making is the most basic teaching skill. Obviously, decision making pertaining to the employment of the most suitable instructional strategies will produce the most desired results.

Janicki (1979) found that students with an internal locus of control did worse in a direct instructional approach than in a small-group approach in which they were allowed to work on math problems in small groups and had some choice of group activities. Conversely, students with an external locus of control did worse in the small-group approach and did better in a direct approach in which students were taught as a large group and then worked on seatwork individually.

The field independence/field dependence construct involves perceiving a simple figure within a complex pattern and determining the extent to which a surrounding organized field has influenced the perception of an item in that field. Analytic versus global construct extremes have been described by Thornell (1976, 1977). The writer observed the importance of the availability of

a variety of instructional strategies for practitioners involved in meeting the individual needs of analytic and global type learners.

Academic performance in specific subject areas such as mathematics is directly influenced by learning style characteristics. According to Hodges (1983), poor mathematics achievers usually require tactual or kinesthetic involvement. Hodges suggests the use of games and other multilevel manipulative mathematics materials for these students.

According to Dunn and Carbo (1979), an analytic learner should be exposed to a phonetic reading approach. This instructional strategy will enable the child to blend individual sounds to form words. Conversely, global learners respond more positively to the language experience approach which involves presenting the whole story and then taking the story apart sentence by sentence, phrase by phrase, word by word, and finally sound by sound. Research indicates that most primary age children prefer to learn globally. This finding bears specific significance to educators involved in planning reading programs for early elementary students.

Schmeck (1981) encouraged students with shallow reiterative learning styles to engage in al-

ternate ways of expressing information in order to develop more elaborative learning styles. This approach involved the students in expressing ideas in a more personally relevant manner. Schmeck developed interventions and instructional activities that effectively counteracted the negative effects of a shallow-reiterative style. Deep-elaborative information processors spend more study time thinking and less time repeating. These students classify, analyze, and synthesize information from different sources. Deep-elaborative information processors think of personal examples, visually imagine personal illustrations, and restate information. Shallow-reiterative information processors spend much study time repeating and memorizing information in its original form. Schmeck's instructional techniques provide a general framework for individuals involved in enhancing the quality of the learning environment.

A study (Copenhaver, 1979) showed that: 1) students have significantly better attitudes toward a subject when the individual learning styles and the teacher's teaching style are similar 2) a wide range of learning styles exists among students in a single class 3) many different teaching styles are necessary in schools

if teachers are to respond to the diversity of learning styles among their students. A review of the literature mildly suggested the benefits to be derived by matching learning styles to teaching styles. However, Holland (1982) has supported a more realistic approach to the topic which involves the cooperation between the teacher and the learner in a reciprocal instructional relationship.

Chapter III

ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

A. Statement of General Goals

The major goal of this practicum was to develop a congruence between students' preferred styles of learning and the conditions of their learning environments. This goal was achieved through the implementation of learning style prescriptions within the resource room and regular classroom environments. In contributing to this major goal, the writer constructed a learning style laboratory environment which was utilized by resource room students, parents and classroom teachers. Exposure to this environment enabled students to independently engage in those activities which complimented preferred styles of learning.

In accommodating the major goal of this practicum, teachers individually adapted this learning styles laboratory environment to meet the needs of resource room students in the mainstreamed settings. The participation of classroom teachers in this practicum facilitated the integration of learning style educational techniques and crossmodal materials in the classroom environments.

Instructional materials provided by the learning style model environment were incorporated into the home environment of each student participant. This solution strategy enabled parents to establish conditions within the home conducive to the students' preferred styles of learning.

B. Behavior Expected, Assessment Instruments and Standard of Performance

The following objectives were projected for this practicum:

Expected Behaviors	Assessment Instruments	Standard of Performance
1. Students will demonstrate an increase in the number of tasks attempted in the resource room environment.	The Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting will evaluate this performance objective.	A pre/post implementation comparison will reveal a task attempted increase of 15% for 16 of the 20 students.
2. Students will complete an increased number of assigned tasks within the resource room setting.	The Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting will evaluate the performance of this objective.	A pre/post implementation comparison will reveal a 20% increase in the number of tasks completed by 16 of the 20 students.
3. Students will demonstrate a decrease in the number of behaviors inappropriate to the resource room environment.	The Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting will evaluate this performance objective.	A pre/post implementation comparison will reveal a 20% decrease in the number of behaviors inappropriate to the resource room environment by 16 of the 20 students.
4. An increase in the number of student selected activities initiated after task completion.	The Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting will evaluate the performance of this objective.	A pre/post implementation comparison will reveal a 20% increase by 16 of the 20 students in the number of student-selected activities initiated after task completion.

Note. Assessment Instruments provided in Appendices.

Note. Standard of Performance over a 5 month duration.

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	Expected Behaviors	Assessment Instruments	Standard of Performance
5.	Teachers will design classroom environments to include a quiet work area(s) for students.	The Systematic Observational Data Of Classroom Environment will evaluate the performance of this objective.	A pre/post implementation comparison will demonstrate an increase in 1 gradation for 8 of the 10 teachers not achieving a 3 gradation on the pre-implementation observation.
6.	Teachers will provide for the inclusion of learning station(s) or interest area(s) within the classroom environment.	The Systematic Observational Data Of Classroom Environment will evaluate the performance of this objective.	A pre/post implementation comparison will demonstrate an increase in 1 gradation for 8 of the 10 teachers not achieving a 3 gradation on the pre-implementation observation.
7.	The teachers' classroom environments will demonstrate an increase in student-selected mobility.	The Systematic Observational Data Worksheet Of Classroom Environment will evaluate the performance of this objective.	A pre/post implementation comparison will reveal an increase in 1 gradation for 8 of the 10 teachers not achieving a 3 gradation on the pre-implementation observation.
8.	Parents will monitor the completion of home instructional activities conducive to the students preferred learning styles.	A Home Instructional Activity Worksheet will evaluate the performance of this objective.	A post implementation summation will reveal that 15 of the 20 parents monitored the completion of 6 of the 8 activities assigned.

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C. Description of Evaluation Instruments

Students within this district had previously not been exposed to any type of self-report instruments. Further, the writer observed that a vehicle did not exist which would enable students to contribute learning style data to the Individualized Educational Programs. These conditions, compounded by a dearth of suggestions within the Instructional Strategies component of the IEP, influenced the writer's decision to employ learning style data derived from the Learning Style Inventory: Primary Version (LSI:P), (Perrin, 1983) and the Learning Style Inventory (LSI), (Dunn, Dunn and Price, 1981).

Prior to implementation, the writer administered the LSI:P and the LSI to resource room students assigned to the k-6 grouping. The LSI:P is designed to be administered to students in grades k through 2 while the LSI is utilized with students in grades 3 through 12. Data derived from the administration of these respective instruments was incorporated into the Instructional Strategies component of the students' Individualized Educational Programs. Although the LSI:P and the LSI were not utilized as pre/post assessment instruments, the qualitative value of the data derived from the selected

self-reports permeates the major goal and contributing objectives of this practicum.

The Learning Style Inventory: Primary Version is based on the Learning Style Inventory (Dunn, Dunn, and Price, 1980). The LSI:P consists of 12 charts containing a series of pictures and related questions. The illustrations depict home and school scenes familiar to most primary age students. The inventory is administered individually and requires the students to provide simple verbal responses. The LSI:P takes approximately 20 minutes to administer. Although the inventory may be administered in one sitting, some children may require two separate sittings.

In order to dispel the illusion of a test involving correct and incorrect answers, the writer followed the suggestion of Perrin and read Elephant Style (Santora and Perrin) to the children as a preliminary activity. This story described the individual learning characteristics of two elephant friends, Ellie and Fonty. As the children became acquainted with the story's characters, an improved understanding of individual learning style differences developed. The writer also involved the children in preliminary perception activities involving sensory experimentations

prior to administering the LSI:P which were suggested by Perrin.

The LSI:P is divided into four major categories: (1) Environmental, (2) Emotional, (3) Sociological, and (4) Physical. These four major categories are stimuli which either stimulate or inhibit learning. The stimuli are divided into the following elements: Environment (Sound, Light, Temperature, Design); Emotional (Motivation, Persistence, Responsibility, Structure); Sociological (Peers, Self, Pair, Team, Adult, Varied); and Physical (Perceptual, Intake, Time, Mobility).

The LSI:P is a simple, hand-scored questionnaire designed to reveal the preferred style of learning for students in grades k through 2. Scoring is accomplished through an Individual Student Profile Form (Appendix J) which records a code for each element surveyed by the instrument.

The Learning Style Inventory is a comprehensive instrument used to diagnose learning styles for students in grades 3 through 12. This instrument assists in prescribing the type of environment, activities, social grouping, and motivating factors that contribute to learning. Hence the LSI reveals the environmental, emotional, sociological and physical preferences a student has

for learning.

The following four major categories of the LSI correspond to those of the LSI:P: (1) Immediate Environment, (2) Emotionality, (3) Sociological Needs and (4) Physical Needs. Similarly, the individual elements correspond as follows: Immediate Environment (sound, temperature, light and design); Emotionality (motivation, responsibility, persistence and the need for either structure or flexibility); Sociological Needs (self-oriented, peer-oriented and/or combined ways); and Physical Needs (perceptual preference(s), time of day, intake and mobility).

The LSI may be group or individually administered. The one-to-one relationship that develops as teachers question students about their preferences often provides new insights that may have a positive influence in helping students to learn (Dunn, Dunn and Price, 1981).

Students may be given this self-report in writing, on tape or orally. True or False responses are required for each question. The instrument may be completed in one sitting or responded to at convenient intervals.

The LSI involves a computerized scoring

procedure which produces an individual profile of each student's responses. The standard score scale ranges from 20 to 80 with a mean of 50 and a standard deviation of 10. Students with a standard score of 60 or higher strongly prefer that specific area as a factor when they learn. A standard score of 40 or lower indicates that a student does not prefer that condition while learning. A score falling between 40 and 60 is varied with respect to how significant a factor is for the individual student.

Both an Area Summary and Group Summary are available from the publishers. These summaries enable teachers to formulate groups of students who share similar preferences for learning environments.

Perrin's Manual for Administration, Interpretation and Teaching Suggestions recommends that once the teacher obtains the learning style preferences of each child, personal observations should supplement these findings. Informal meetings with classroom teachers during the preliminary period prior to implementation revealed that teachers considered task related behavior to be the most crucial indicator of desired classroom performance.

The writer designed the Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting to measure the student

related objectives of this practicum (Appendix E). Item letter A of the instrument was developed to monitor the writer's consistency in assigning the same number of daily instructional tasks. A pre-implementation/post-implementation comparison of item letters B and C was directly influenced by the consistency of item letter A during pre-implementation and post-implementation. The writer designed item letter D to delineate productive and non-productive behaviors within the learning setting. Item letter D terms non-productive behaviors as inappropriate to the setting. Those behaviors which detracted from the completion of an assigned task were tabulated next to this item. For example, students wandering aimlessly about the room, bickering with classmates or refusing to become involved in specific activities relating to an assigned task were considered to be engaging in behaviors inappropriate to the learning environment. Conversely, mobility, discussion with classmates and periods of task contemplation and planning were considered productive task related behaviors. The writer designed the Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting to provide space for notations on these worksheets re-

lating to item letters D and E.

Item letter E, student-selected activity, was contingent upon task completion. The notations for item E described the types of self-selected activities the student engaged in during each observation period.

Practicum performance objectives relating to the classroom teachers' environmental designs, materials and conditions were evaluated by the Systematic Observational Data Of Classroom Environment designed by the writer. This instrument contains a total of 4 gradations ranging from a 0 through 3 rating. The rating 0 was used to signify a non-existent state in one of the following categories: (A) Classroom setting contains quiet work area, (B) Classroom setting contains learning stations and/or interest areas providing auditory, visual and crossmodal materials, and (C) Student-selected mobility is provided within the classroom environment. A rating of 1 denoted an impoverished or inadequate condition within the classroom environment. A 2 rating represented an adequate or satisfactory environmental condition. A rating of 3 was used to denote an optimal condition of the environment as rated

by this instrument. The following three elements were selected from the writer's review of the LSI:P and the LSI: sound, perception and mobility. These elements were most conducive to an objective evaluation of the setting, while correlating directly to the environmental conditions and resources utilized by the classroom teachers.

The Home Instructional Activity Worksheet (Appendix H) was designed by the writer to evaluate the performance of the parent related objectives of this practicum. The activities which corresponded to this objective engaged the parent and child in a home learning environment which was responsive to the learning style needs of the student.

Chapter IV

SOLUTION STRATEGY

A. Discussion and Evaluation of Possible Solutions

The literature provided evidence to indicate that students are capable of supplying information relating to preferred styles of learning. When 175,000 youngsters in grades 3 through 12 were administered the Learning Style Inventory (Dunn, Dunn, and Price, 1981) it was found that most students were not only capable of relating this information but were delighted to do so when asked (Dunn, 1983).

Davidman (1981) refuted the theoretical position held by LSI authors. According to Davidman, the personalized data supplied by the LSI may contribute to the needs of the individual but this data did not contribute to the needs of the local community and the larger society. Davidman warned that LSI data could be utilized to support the efforts of parents seeking to remove children from public schools which were incapable of meeting the needs of students' preferred learning styles.

Hunt's position on learning style theory

viewed the teachers' implicit ideas about student learning styles and the intuitive matching models as rich sources of information. Unlike Davidman, Hunt has not refuted the Dunn/Price position, but rather underscores the posture that practice and theory must be reciprocally related. According to Hunt (1981), it is the teacher's disciplined trial and evaluation of results that should determine the amount of structure individual students need in order to learn efficiently. Hunt's theory agrees with researcher Hunter's (1979) position that teachers are capable of utilizing analytical qualities which are crucial to diagnosing learning styles. Researchers Hunter and Hunt have both supported the practitioner's use of formal and informal learning style assessment instruments.

Dunn (1977) suggested that teachers keep a diary or record students' learning style traits. This information could be utilized in designing effective programs for students. Although the author of a formal diagnostic instrument, Dunn has not discredited the value of data derived from informal observation.

Dunn and Dunn (1977) explained how classroom rearrangement can result in an instruc-

tional setting which is conducive to the student's individual learning style needs. Areas suggested by the Dunns include a "magic carpet" reading section, interest center, learning station and media center. The authors have provided a blueprint which suggests using available wall space, bookcases and corners as quiet seating areas.

Fox (1976) described learning centers as tools for individualization typically located in a section of the classroom containing a collection of programmed activities and materials which can be used to teach, reinforce or enrich a skill or concept. Learning centers are non-graded; highly motivating and generally emphasize self-checking. Fox has suggested that teachers begin to utilize learning centers slowly with a small group of independent learners. When the teacher feels that the system is working, then another learning center can be added to the program and another group of learners can begin to work with the learning center. Fox further described interest centers as areas which contain activities and/or materials offered to students as optional tasks when assignments have been completed. The author noted that in this arrangement,

there may be many students who do not have the opportunity of working with interest centers.

Researchers Dunn and Dunn (1979) have identified mobility as an element that either permits or inhibits learning. According to the Dunns, some students have been mistakenly labeled "hyperactive" that are either light-sensitive or require a great deal of mobility. These same children may be able to learn well when permitted to take frequent breaks or when assigned tasks which require movement from area to area. The Dunns have emphasized that the environmental elements of learning style and the need for mobility can be accommodated by the teacher, regardless of teaching style, as long as the phenomena are understood, and the teacher is willing to permit some flexibility.

Extensive observations and research have verified that significant improvement in both student achievement and motivation result when learning and teaching styles are matched (Farr, 1971). This finding has underscored the importance of matching instructional resources with identified student characteristics and gradually expanding instructional operations to assist those students who have not positively responded

to traditional strategies.

Peterson (1979) discussed the choice of direct instruction vs. other instructional approaches. While a student with an internal locus of control may be inhibited by the controls of direct instruction, a student with an external locus of control might desire the teacher to assume more instructional responsibility.

Authors Dunn and Dunn have developed the model Contract Activity Package (CAP) which can be utilized by classroom teachers as a tool for meeting individual student needs. The CAP is a self-contained unit devoted to a specific topic or skill containing a cover, an introduction and pretest, a list of objectives, a variety of activity and reporting alternatives, sources, small-group activities, worksheets, posttest, contract, answer key, and a student completion card (Dunn and Dunn, 1977). Beginning CAP writing as suggested by the authors should remain simple and modified to meet the individual needs of students.

Another instructional delivery system, the programmed learning sequence, (PLS), has also been elaborated upon by Dunn and Dunn (1978). A programmed learning sequence is described as a set of instructions which helps a student learn a

complex task by breaking it into a series of simple, one-at-a-time steps. PLS materials are especially helpful with slow learning students, children requiring structure and students who do not work well in groups. PLS materials require students to be active participants while providing immediate feedback regarding the correctness of each response. As with the CAP system, development of a PLS requires that the teacher begin by identifying a desired topic. Although developing a program is not difficult, it does require that a topic be organized into a logical sequence. All programmed sequences are either linear or intrinsic. The linear program requires every student to complete each frame, whereas the intrinsic program allows some students to skip unneeded frames and others to turn to additional frames for reinforcement. This intrinsic program format is termed "branching."

Dunn and Dunn (1978) described how high-interest, hands-on learning activities motivate children with every type of learning style. Teachers are provided illustrations depicting learning circles and learning strips which can be utilized for reading and math instruction. Self-correcting matching pieces are illustrated

for use with students who cannot remember easily by listening or by reading. Electroboards and jigsaw puzzle learning activities are also described as resources to be utilized with tactual-kinesthetic learners.

Multisensory learning packages constitute yet another instructional mode which has been refined by the Dunns. (Dunn and Dunn, 1978) have suggested incorporating visual, tactual, and kinesthetic activities into learning packages devoted to specific instructional topics. A well-developed multisensory learning package invariably contains a cassette tape which supplies explicit instructions. At least four senses are utilized to learn the contents contained within the package. Employing multisensory learning packages enables teachers to meet individualized learning style needs through both an efficient and effective instructional mode.

Classroom research conducted by Schmeck (1981) indicated that students can be encouraged to develop more elaborate thinking processes. The development of elaborate as opposed to shallow thought processes is contingent upon the student's ability to in-

corporate information into an intellectual framework. Schmeck's observations suggest that this transformation can be accomplished through the utilization of instructional techniques which are responsive to the individual learning style needs of students.

A study was conducted to determine the academic and behavioral growth of 50 learning disabled students in grades 2-5 who participated in a teacher-consultant program for 1 year (Bagley and Larsen, 1976). During program implementation, a consultant provided remedial instruction, visited regular classroom settings to monitor and evaluate the progress of special students, shared materials and offered instructional techniques to classroom teachers. This program conducted in accordance with the Teacher Consultant Model (Mc Kenzie, 1971) produced actual achievement results beyond the predicted achievement scores. Results for the affective area, although significant, were not as positive as results from the achievement area.

B. Description of and Justification for Solution Selected

The writer utilized formal and informal techniques in obtaining learning style data for resource room students. Both observational and self-report instruments were employed for this purpose.

Formal learning style data was obtained by administering the Learning Style Inventory: Primary Version (Perrin, 1983) and the Learning Style Inventory (Dunn, Dunn, and Price, 1981). The writer selected to reject the admonishments of Davidman (1981) relative to parental misuse of learning style data. Based on a thorough review of the literature, the writer interpreted implementation of learning style data as contributive to the individual and the instructional setting. Information provided by the inventories was incorporated into the Instructional Strategy component of the students' Individualized Educational Programs. This data enabled classroom teachers to design environmental conditions and instructional strategies congruent with the learning style needs of the resource room students.

Informal observational data was obtained through the utilization of a Systematic Observational Data Worksheet Of Student Perfor-

mance Within The Resource Room Setting both prior and subsequent to implementation. Information extracted from this instrument was augmented by observational notes derived from the writer's Implementation Log. Although this log primarily contained observations made by the writer in the resource room setting, observations furnished by classroom teachers and supplied to the writer during consultations were also incorporated into the writer's Implementation Log. Utilization of a diary was suggested in the literature (Dunn, 1977).

The strategy selected by the writer relative to the employment of formal and informal learning style data was harmonious with the philosophies of learning style theorists Hunter and Hunt.

The resource room setting served as a model learning style environment throughout implementation. The model environment included a "magic carpet" reading section, an interest center, and two crossmodal learning stations. This setting also contained three study carrels for independent projects, two large activity tables for discussion and group projects and wall seating for those students requiring a minimal degree of distraction during instruction.

The model learning style environment served

as a consultation site for meetings between the resource room and the regular classroom teacher. During implementation, the writer influenced teacher and student behavior by manipulating the conditions of the instructional environment. Based on data derived from the learning style inventories, the writer planned a preferred seating arrangement for each resource room student within the mainstreamed environment. During individual consultations, multisensory instructional material was made available to regular classroom teachers. These materials enabled teachers to more readily establish crossmodal learning stations. Instructional techniques and materials recommended during consultations were harmonious with individual student learning styles.

The availability of mobility opportunities was an essential learning style environmental condition. During consultations, teachers were provided student data pertinent to this learning style element. The utilization of activity tables, study carrels and learning stations served as stimuli for classroom mobility. Consultations also involved a discussion of constructive classroom movement as contrasted to aimless wandering. Implementation of this strategy enabled the writer

to extend the latitude of mobility permissible within the individual class settings.

The strategy of utilizing multisensory learning materials was used to achieve reciprocality between teaching and learning styles. This reciprocality technique was recommended by Holland (1982) and was employed by the writer during practicum implementation. The writer implemented a strategy which enabled teachers to extend beyond the boundaries of the most frequently utilized teaching modalities through the utilization of multisensory supplemental materials.

Peterson (1979) and Janicki (1979) have provided evidence which indicates that those students possessing an internal locus of control respond less favorably to direct instruction than those students who possess an external locus of control. The writer supplied information for inclusion in the Instructional Strategies component of the IEP which contained recommendations for the specific type of structure consistent with each child's learning style.

During consultations, the writer and classroom teacher reviewed observational notes relative to student performance during independent,

paired and group activities. These observations were supplemented by related data derived from the learning style inventories. This strategy was suggested in the literature by researchers Schmeck and Lockhart (1983) who have reviewed the work of Cattell and Eysenck in the field of personality psychology. This investigation indicated that while some students profit from paired and team activities, other children possess a definitive need for independent study.

Based on the research of Dunn and Carbo (1979), the writer reviewed techniques relative to a language experience reading approach with the teachers of students in primary grades. These researchers have provided evidence which indicates that primary students generally respond more favorably to a global as opposed to an analytic reading presentation. The writer developed language experience charts in the resource room setting which were displayed and discussed during consultations. Teachers were provided instructional materials and needed supplies for developing language experience charts in the classroom setting.

In response to Schmeck's suggestions (1981), the writer utilized multisensory instructional materials which required the students to classify, analyze and synthesize information. This instructional strategy was employed to discourage reiterative responses. These materials were utilized for the development of classroom learning stations.

Multisensory learning packages were developed by the writer and issued to the parents of resource room students. These instructional packages contained the following types of materials: tapes and related booklets, worksheets, laminated activity cards, cut-color-paste sheets, and jigsaw puzzle learning cards. The writer purchased Contract Activity Packages from the Learning Styles Network of St. John's University. These materials along with the multisensory learning packages were utilized within the home learning environments. Parents monitored the students' completion of these activities within the home setting. The writer developed the Home Instructional Activity Worksheet (Appendix H) for the purpose of procuring quantitative and qualitative data. However, this worksheet also served as a recording device which enabled the writer

to systematically issue multisensory learning materials. To heighten student interest, the writer developed a wall chart which illustrated the number of multisensory learning packages completed by each student within the home learning environment.

Since many learning disabled students required continued practice experiences beyond that which is normally provided in a regular class setting, programmed learning materials were issued to students for use in the classroom. The writer confered with teachers concerning the most advantageous utilization of the programmed materials.

Implementation strategy involved the writer in many of the activities comprising the Bagley and Larsen study (1976) which was conducted in accordance with the Teacher Consultant Model (Mc Kenzie, 1971). The writer acted as a consultant to classroom teachers, visited classes and monitored student progress, shared materials and offered instructional recommendations to teachers. However, the writer's job description required some modification of this model.

Prescriptive instruction was provided to students within the resource room rather than the regular class setting. The writer chose the term prescriptive as opposed to remedial instruc-

tion described by Mc Kenzie's Teacher Consultant Model. The writer determined that instruction which was responsive to Individualized Educational Plans, learning style inventory data and informal observational sources required a distinct and unambiguous nomenclature. Within the Mc Kenzie Model the writer functions primarily as a consultant devoting limited time to instructing students. During implementation, the writer functioned primarily as a prescriptive teacher to resource room students and secondarily as a consultant to classroom teachers. Consultations were provided to teachers both before and after school hours and during preparation periods.

The writer conducted an individual Learning Style Conference with each parent participant of this practicum. During this conference the writer reviewed the learning style data derived from the inventory administered prior to implementation. Parent participants viewed a sound filmstrip designed specifically for parents entitled "Tell Me About Learning Styles: An Explanation For Parents." Each parent was provided a copy of the student's revised IEP Instructional Strategies compo-

nent during this meeting. Information contained within this document was thoroughly explained to parents. This explanation enabled the parent to establish home learning conditions conducive to the learning style needs of the child.

C. Calendar Plan for Implementation

May, 1983

1. Attended Major Practicum Orientation Session with Dr. Sapp
2. Discussed proposed topic of learning styles with Dr. Richens, Superintendent
3. Wrote note requesting copy of Learning Style Inventory: Primary Version from author

June, 1983

1. Ordered multisensory instructional materials for utilization during implementation

July, 1983

1. Met with Dr. Sorosky during Summer Institute at Mills College in Oakland, California Discussed an examination of the problem, a review of LSI:P, and teaching assignment for 1983-1984 school year

August, 1983

1. Contacted Dr. Richens concerning teaching assignment for 1983-1984 school year
2. Contacted Monmouth County Planning Board to update statistics for Chapter I of proposal
3. Conferred with Dr. Sorosky relative to 1983-1984 resource room assignment

September, 1983

1. Submitted Chapter I of proposal
2. Reviewed books supplied by Dr. Sorosky
3. Reviewed each resource room student's IEP
4. Conducted individual conferences with classroom teachers
5. Supplied teachers with a copy of the needs assessment instrument
6. Observed students informally in regular class settings
7. Conducted a manual review of the literature
8. Conferred with Dr. Sorosky concerning progress during preliminary practicum activities
9. Submitted Practicum Problem Questionnaire (PPQ)

October, 1983

1. Conducted a manual review of the literature
2. Submitted Computer Search Form to Nova University
3. Inserted additions to Chapter I of proposal
4. Conferred with Dr. Sorosky relative to the development of pre/post implementation observational instruments
5. Reviewed material relative to the development of objective observational instruments
6. Conducted an informal observation of the regular class environments

November, 1983

1. Conducted a manual review of the literature
2. Met with Dr. Sorosky in Wilmington, Delaware relative to approval of the pre/post observational instruments
3. Developed release form for students participating in the practicum
4. Conducted individual conferences with parents of resource room students
5. Observed regular class settings utilizing the pre-implementation Systematic Observational Data Of Classroom Environment
6. Ordered Learning Style Inventory LSI for intermediate level students

December, 1983

1. Re-submitted Computer Search Form to Nova University
2. Conducted a manual search of the literature
3. Conducted a pre-implementation evaluation of students utilizing the Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting
4. Completed Chapter II of proposal
5. Ordered microfiche from Nova University Information Retrieval System

December, 1983

6. Wrote Chapter III of proposal

January, 1984

1. Researched microfiche supplied by the Information Retrieval System
2. Contacted Dr. Sorosky concerning completion of proposal
3. Read Elephant Style to students
4. Administered LSI and ISI:P to resource room students
5. Completed practicum proposal

February, 1984

1. Developed multisensory learning materials
2. Administered any learning style inventories not completed in January
3. Mailed LSI answer sheets to Price Systems
4. Summarized results from the LSI:P
5. Conducted individual conferences with classroom teachers demonstrating resource room technology

March, 1984

1. Began implementation
2. Wrote Instructional Strategies for each student based on data obtained from inventories
3. Conducted consultations with classroom teachers

March, 1984

4. Assigned 2 activities to students for completion in the home learning environments

April, 1984

1. Conducted individual consultations with classroom teachers
2. Assigned 2 activities to students for completion in the home learning environments
3. Prepared for Learning Style Conferences to be conducted with parent participants
4. Conducted an individual Learning Style Conference and audio-visual presentation with each parent participant
5. Contacted Dr. Sorosky concerning the results of the Learning Style Conferences

May, 1984

1. Conducted individual consultations with classroom teachers
2. Assigned 2 activities for completion within the home learning environments

June, 1984

1. Conducted individual consultations with classroom teachers
2. Assigned 1 activity for completion within the home learning environments

June, 1984

3. Conducted a post/implementation evaluation of regular classroom settings utilizing the Systematic Observational Data Of Classroom Environment instrument
4. Conducted a post/implementation evaluation of resource room students utilizing the Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting

July, 1984

1. Assigned 1 activity to students for completion within the home learning environments
2. Conferred by phone with parents concerning student performance and completion of home learning activities
3. Tabulated results of the students' completion of home learning activities
4. Began writing practicum report

August, 1984

1. Continued writing practicum report

September, 1984

1. Conducted individual learning style conferences with the (1984-1985) teachers of students who participated in this practicum supplying copies of the students' Instructional Strategies

September, 1984

2. Disseminated results of this practicum with parent participants during Open House
3. Completed practicum report

D. Report of Action Taken

The calendar presented in section C of this chapter was utilized as a guide in planning activities associated with this practicum. The preliminary planning and implementation stages were accomplished without difficulty. A careful study of the problem and a thorough review of the literature contributed positively to practicum results. Daily exposure to the students enhanced the writer's ability to achieve both a global and analytical interpretation of the problem and the ensuing solution.

A thorough review of the resource room students' Individualized Educational Programs provided evidence which indicated the district's need to initiate a plan for systematically obtaining learning style data. The writer obtained the necessary administrative support and was encouraged to utilize resources available within the district in developing a solution strategy for the identified problem.

Information relative to the need for integrating learning style data into the Individualized Educational Programs of the identified students was supplied during interviews with the students' classroom teachers. The signifi-

cance of obtaining learning style data was evaluated by a questionnaire designed by the writer (Appendix A). The results of the administration of this instrument (Appendix B) confirmed the teachers' need for obtaining learning style data in order to provide adequate services to resource room students.

After reviewing the literature relative to learning style inventories, the writer determined that the Learning Style Inventory: Primary Version (Perrin, 1983) and the Learning Style Inventory (Dunn, Dunn, and Price, 1981) were the most suitable instruments to be administered to the student participants of this practicum. These respective instruments contributed to the writer's understanding of learning style elements.

The writer submitted to the Board of Education a purchase order listing a variety of multisensory learning materials which were employed during practicum implementation. Along with Contract Activity Packages purchased from the Learning Styles Network of St. John's University the writer designed additional materials to be incorporated into multisensory learning packages. Preliminary planning enabled the writer to effectively integrate these materials into the

students' educational programs.

The writer designed the Systematic Observational Data Of Classroom Environment (Appendix C) to evaluate the teacher related objectives of this practicum. The writer refers the reader to the Systematic Observational Data Of Classroom Environment Pre-Implementation/Post-Implementation Comparison (Appendix D).

The writer developed an Instructional Strategies component for each student participant's Individualized Educational Program. Learning style data derived from the LSI:P and the LSI was incorporated into these educational documents. This information was substantiated by additional data derived from observations conducted within the resource room environment. The Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting (Appendix E) was designed by the writer and utilized to evaluate the student related objectives of this practicum. This data was further substantiated by notes derived from the writer's Implementation Log. Notations from this source were also supplied by the classroom teachers during consultations with the writer. The writer refers the reader to the Pre-Implementation/Post-Implemen-

tation Comparison of the Students' Performance Within the Resource Room Setting (Appendix F).

The writer designed the practicum to actively involve parents in developing home learning environments conducive to the learning style needs of the students. During the preliminary stages, meetings were scheduled with parents during November Parent Conferences.

The writer developed a release form (Appendix G). Before supplying parents with this form, the objectives of the practicum and the instruments that would be used to obtain learning style data were explained. The release form was designed to address the legal and ethical considerations relevant to practicum implementation.

During the conferences, the parents were introduced to sample multisensory learning packages and the Home Instructional Activity Worksheet (Appendix H). The Home Instructional Activity Worksheet was designed by the writer in order to facilitate the assignment of multisensory learning packages into the home learning environments. This worksheet was also used to monitor progress of the parent related objectives of this practicum. The writer refers the reader to Home Instructional Activities Completed by Resource

Room Students (Appendix I).

Throughout implementation parents consulted with the writer and were encouraged to utilize the technology available within the model learning style laboratory. The writer conducted an individual Learning Style Conference with each parent participant. The parent participant was provided a copy of the student's revised IEP Instructional Strategies component. The writer explained the recommendations contained within this document to the parent. A segment of each conference was devoted to the viewing of an audio-visual presentation entitled "Tell Me About Learning Styles: An Explanation For Parents." The Learning Style Conference enabled the parent participant to establish home learning conditions conducive to the learning style needs of the child.

Support for this practicum was readily obtained from classroom teachers who had expressed frustration in meeting the individualized needs of the resource room students. Consultations, multisensory learning materials and the learning style data provided by the writer assisted in sustaining the teachers' cooperation throughout implementation. Consultations

were scheduled at times that were mutually convenient to both the writer and the classroom teacher. Recommendations were made on the basis of observed student needs and were not based on observed inferior instructional practices. Contact with the student participants for a minimum of one instructional period each day contributed significantly to the credibility of the writer's intent.

Chapter V

RESULTS, CONCLUSIONS, RECOMMENDATIONS AND DISSEMINATION

A. Results

This practicum was designed to achieve an organizational perspective in providing services to students assigned to a k through grade 6 resource room. The procurement of learning style data enabled the writer to develop harmonious learning conditions within the school and home settings. The quality of services available to the students was enhanced through the development of a revised Instructional Strategies component to the students' Individualized Educational Programs. Utilization of learning style data enabled educational programs to achieve a level of individualization not previously attained within this district.

1. Expected Behavior A task attempted increase of 15% would be demonstrated by 16 of the 20 students.

   Result This objective was achieved by a minimum task attempted increase of 15% by 18 of the 20 students. The writer refers the reader to section B (Appendix F).

2. Expected Behavior A task completion increase of 20% would be achieved by 16 of the 20 students.

Result A minimum task completion increase of 20% was attained by 16 of the 20 students. A pre/post implementation comparison is provided in section C (Appendix F).

3. Expected Behavior Behaviors inappropriate to the resource room would demonstrate a 20% decrease by 16 of the 20 students.

   Result A minimum decrease of 20% was attained by 17 of the 20 students. A pre/post implementation comparison of inappropriate behavior is provided in section D (Appendix F).

4. Expected Behavior Student-selected activities would demonstrate a 20% increase by 16 of the 20 students.

   Result This projected attainment of this objective by 16 of the 20 students was not accomplished. The writer refers the reader to section E (Appendix F) which reveals that 15 of the 20 students increased a minimum of 20% in the area of student-selected activities.

5. Expected Behavior Teachers would design classroom environments to include a quiet work area (s) for students. This objective would require an increase in 1 gradation for 8 of the 10 teachers.

Result This objective was attained with a minimum increase of 1 gradation by 8 of the 10 teachers. The writer refers the reader to section A (Appendix D).

6. Expected Behavior Teachers would provide for the inclusion of learning station (s) or interest area (s) in the classroom environment. This objective would require an increase in 1 gradation for 8 of the 10 teachers.

   Result This objective was achieved with a minimum increase of 1 gradation by 8 of the 10 teachers. The writer refers the reader to section B (Appendix D).

7. Expected Behavior An increase of 1 gradation in student-selected mobility would be demonstrated in the classroom environment of 8 of the 10 teachers.

   Result A minimum of 1 gradation increase in the area of student-selected mobility was achieved by 8 of the 10 teachers. The writer refers the reader to section C (Appendix D).

8. Expected Behavior Parents of 15 students would monitor the completion of 6 home learning activities conducive to preferred learning styles.

Result A minimum of 6 instructional activities monitored by parents were completed by 16 of the 20 students in the home learning environment (Appendix I).

B. Conclusions

A thorough examination of the problem condition and a review of current literature enabled the writer to construct behavioral objectives which provided a guideline for developing an effective solution strategy. The expected behaviors, section B of Chapter III, were designed to delineate a minimum performance increase for objectives (1,2,4,5,6,7) and a minimum performance decrease for objective (3). Results indicate that 7 of the 8 projected objectives for this practicum were attained. However, an individual analysis of results for teacher participants (Appendix D), student participants (Appendix F), and parent participants (Appendix I) reveals instances where individual participants exceeded the performance standard established as evaluative criteria for this practicum.

The writer concludes that these favorable results may be attributed to the training in learning style based instruction which was provided to all practicum participants. As a result of this training, an awareness of the interplay between the individual and the environment evolved. In contrast to the theory of Davidman (1981), the writer postulates that learning styles based instruction is

contributive to the environmental conditions of the group as well as the individual. A pre/post implementation comparison of the writer's notes on the Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting relative to iten letter D and item letter E revealed that as a result of implementation student participants initiated an increased number of appropriate and prosocial behaviors when involved in both teacher selected and student selected activities. These findings are in agreement with informal observations made by teacher participants throughout implementation. A comparison of formal data and informal observations enabled the writer to conclude that when provided an opportunity, elementary students are capable of identifying individual learning style characteristics.

The results of this practicum concur with the writer's original hypothesis that the systematic integration of learning style data into the educational programs of resource room students produces a preferred organizational perspective in providing services to resource room students. Learning styles based instruction is in agreement with the rational responsible for

the development of the Individualized Educational Programs.

The teacher participants demonstrated a receptiveness to learning styles based instruction which positively influenced the consequences of the practicum. The writer ascribes the results of the teacher related objectives to the multisensory learning materials, learning style data and consultations which were provided to the teacher participants during implementation. Student related information obtained from the classroom teachers enabled the writer to develop an improved understanding of the learning style characteristics of the individual students.

The writer concludes that continuous supportive services must be made available to regular classroom teachers who are confronted with the challenge of satisfying the individualized educational needs of classified students. As a result of this practicum, the following supportive measures have been established: 1) the utilization of learning style inventories as a distinct component of special service evaluations 2) the issuances of Individualized Educational Programs to classroom teachers of classified students eligible for instruction within the resource room 3) the presence

of both the resource room and the regular classroom instructors functioning in the role of "teacher" during IEP meetings. Prior to implementation, only the resource room teacher received the students IEPs and functioned in the role of "teacher" during the IEP conferences.

Parents successfully demonstrated the ability to monitor the students' completion of activities which were conducive to individual learning style needs. Feedback supplied by parents revealed the participants willingness to engage in an exchange of information relating to the individual learning style needs of the students. The writer concludes that receptiveness is maintained when the educator remains cognizant of the parent's need to become involved in the development of the child. Since few parents have been trained in formal pedagogical practices, instructional recommendations, materials and consultations are required to insure the effectiveness of educational programs in which parents serve as program participants.

C. Recommendations

The following list of recommendations is submitted for those who may plan to implement

a similar program in the future:

1. Although the format provided may be applied to students in grades k through 6, the writer suggests cognizance in the selection of instructional materials and learning style inventories which are age appropriate for the intended population.
2. A release form should be developed which designates the instrument that will be utilized to obtain learning style data.
3. Pre-implementation consultations with participants are essential to the success of any similarly conducted program.
4. Extend beyond the confines of your immediate setting, involving colleagues in your efforts.
5. Maintain communication with the home learning environments by means of conferences, progress notes and telephone consultations.
6. Demonstrate a willingness to collaborate with parents and colleagues in obtaining learning style data relative to the child.
7. Develop a systematic plan to integrate multisensory materials into the class-

room and home learning environments.

8. Achieve a congruence in learning style conditions by training parents as home educators.
9. In order to facilitate the delivery of services, plan extensively prior to implementation.
10. Enlist assistance from leading authorities in the field and confer with these individuals when results are obtained.

D. Dissemination

The writer served as a workshop demonstrator at the 1984 Good Ideas Conference sponsored by the New Jersey Educational Association. Multisensory learning materials utilized during implementation were introduced to teachers via a slide presentation.

The writer will disseminate results of this practicum within the district during Open House in September 1984. Parents will be provided an opportunity to examine pictures taken of student participants engaging in multisensory learning activities (Appendix K). During this presentation, the writer will display self-developed modified contract activity packages (Appendix L) and discuss the results of this practicum. Future plans for dissemination will include the submission of findings resultant of this practicum to educational journals.

REFERENCE NOTES

1. Perrin, J. Learning Style Inventory Primary Version, copyright by Perrin, 1983.

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APPENDIX A

Questionnaire

Dear Respondent,

I am a doctoral student in Early Childhood Education at Nova University. As a participant in this program, I am interested in the application of learning style theory within an educational setting.

Learning style may be succinctly defined as an individual's preferred way of learning. Current research indicates positive results can be achieved when the student is taught in a manner congruent to that individual's learning style.

Please read and consider the learning style elements carefully before evaluating their significance in planning your child's educational program. Although you are being asked to consider each factor individually, please do not feel obliged to rate factors differently if you decide that all possess equal significance in determining strategies for the learner.

Thank you for your time and consideration in completing this inventory. Please return the inventory at your earliest convenience.

Jean Marie Cassidy

Please evaluate the significance of the following factors in planning educational programs for resource room children according to the scale provided below:

1. irrelevant
2. of limited relevance
3. relevant
4. very relevant

I. ENVIRONMENTAL

Sound

Information which indicates whether the child concentrates best in silence, with some background sound, or whether he/she is unaffected by sound and able to "tune out" extraneous noise while concentrating.

rating _____

Light

Information which indicates whether the child is comfortable in a brightly lit work area, is light-sensitive, or whether he/she is unaffected by normal lighting conditions.

rating _____

Temperature

Information which reveals whether the child is distracted when he/she feels either too warm or too cool, or whether the child is not overly sensitive to normal variations in room temperature.

rating _____

Design

Information which reveals whether the child works best while seated at a desk and chair, at an activity table or study carrel, or whether the child works best on a rug or in a comfortable chair.

rating _____

II. Emotional

Motivation

Data which reveals whether the child is self-motivated, peer motivated, or authority motivated.

rating _____

Responsibility

Data which indicates the child's persistence to begin and complete assignments.

rating _____

Structure

Data which reveals the child's preference for self-selected activities or his/her need for imposed organization.

rating _____

III. Sociological

Adult, Peers, Alone

Information which indicates whether the child prefers to work with an adult, with peers, or alone.

rating _____

IV. Physical

Perceptual

Information which indicates whether the child remembers best when he/she uses visual, auditory, tactual, kinesthetic, or a combination of media.

rating _____

Intake

Information which reveals whether the child has a need to nibble or drink while working.

rating _____

Time Of Day

Data which indicates the peak energy time for the child (morning, afternoon or evening).

rating _____

Mobility

Information which reveals the child's need to remain seated in one location or to move to a new setting in order to complete an assignment.

rating _____

APPENDIX B

Teachers' Ratings of Selected Questionnaire Items

	Significance Ratings									
	1		2		3		4			
	Teachers									
Items	A	B	C	D	E	F	G	H	I	J
1. Sound	4	4	4	3	4	4	2	4	3	3
2. Light	4	3	4	2	3	2	3	4	3	3
3. Temperature	3	3	4	2	4	2	3	4	2	3
4. Design	3	3	4	4	3	3	3	3	3	3
5. Motivation	4	3	4	3	4	4	3	4	4	3
6. Responsibility	4	4	4	4	4	4	4	3	3	3
7. Structure	3	4	4	4	3	4	3	3	3	3
8. Adult, Peer, Alone	3	4	4	4	3	2	3	3	3	3
9. Perception	3	4	4	4	3	4	4	4	4	3
10. Intake	2	3	3	2	2	2	3	2	2	3
11. Time of Day	3	3	4	4	4	3	4	3	3	3
12. Mobility	4	4	4	4	4	4	3	3	4	3

Note.

1. irrelevant
2. of limited relevance
3. relevant
4. very relevant

APPENDIX C

Systematic Observational Data Of Classroom Environment

Circle Pre-implementation Post-implementation

Class Code _____

Subject Observed _____

Date _____

A. Classroom setting contains quiet work areas

0. none provided

1. one quiet work area is present but is not fully utilized

2. one quiet work area is present and is fully utilized

3. two or more quiet work areas are present and are fully utilized

B. Classroom setting contains learning stations and/or interest areas providing auditory, visual and crossmodal materials

0. none provided

1. one learning station or interest area is present but does not contain a mixture of auditory, visual and crossmodal materials

2. one learning station or interest area is present which contains a mixture of auditory, visual and crossmodal materials

3. two or more learning stations or interest areas are present which individually or collectively contain a mixture of auditory, visual and crossmodal materials

Circle Pre-implementation Post-implementation

Class Code _____

Subject Observed _____

Date _____

C. Student-selected mobility is provided within the classroom environment

0. none provided

1. students may move about the room for personal needs (tissues, lavatory privileges, etc.) and materials (art and writing supplies, reference books, etc.) after teacher permission has been provided

2. students may move about the room for personal needs (tissues, lavatory privileges, etc.) and materials (art and writing supplies, reference books, etc.) without seeking teacher permission

3. self-selected mobility is provided within the learning environment which enables students to work on projects and assignments in quiet work areas, in study carrels, at activity tables or at interest centers

APPENDIX D

Systematic Observational Data of Classroom Environment
Pre-Implementation/Post-Implementation Comparison

	Gradations 0	1	2	3		
	Areas Rated					
	(A) Sound		(B) Perception		(C) Mobility	
Teachers	Pre/Post		Pre/Post		Pre/Post	
A.	(1)	(2)	(1)	(1)	(2)	(3)
B.	(0)	(2)	(0)	(2)	(2)	(2)
C.	(0)	(2)	(0)	(1)	(1)	(2)
D.	(0)	(1)	(1)	(2)	(1)	(3)
E.	(1)	(2)	(1)	(1)	(1)	(3)
F.	(1)	(2)	(0)	(1)	(1)	(2)
G.	(0)	(0)	(1)	(2)	(1)	(2)
H.	(2)	(2)	(0)	(1)	(2)	(2)
I.	(1)	(2)	(0)	(2)	(2)	(3)
J.	(1)	(2)	(1)	(2)	(2)	(3)

Note.

0. non-existent
1. impoverished or inadequate
2. adequate or satisfactory
3. optimal condition

APPENDIX E

Systematic Observational Data Worksheet Of Student Performance Within The Resource Room Setting

Circle Pre-implementation Post-implementation

Student _____

Subject _____

Date _____

Monday	A. Number of tasks assigned ____		Notes Item D
	B. Number of tasks attempted ____		
	C. Number of tasks completed ____		
	D. Number of behaviors inappropriate to setting ____		Item E
	E. Student-selected activity initiated after tasks were completed (yes-no) ____		
Tuesday	A. Number of tasks assigned ____		Item D
	B. Number of tasks attempted ____		
	C. Number of tasks completed ____		
	D. Number of behaviors inappropriate to setting ____		Item E
	E. Student-selected activity initiated after tasks were completed (yes-no) ____		
Wednesday	A. Number of tasks assigned ____		Item D
	B. Number of tasks attempted ____		
	C. Number of tasks completed ____		
	D. Number of behaviors inappropriate to setting ____		Item E
	E. Student-selected activity initiated after tasks were completed (yes-no) ____		
Thursday	A. Number of tasks assigned ____		Item D
	B. Number of tasks attempted ____		
	C. Number of tasks completed ____		
	D. Number of behaviors inappropriate to setting ____		Item E
	E. Student-selected activity initiated after tasks were completed (yes-no) ____		

Circle Pre-implementation Post-implementation

Student _____

Subject _____

Date _____

Friday

A. Number of tasks assigned ____
B. Number of tasks attempted ____
C. Number of tasks completed ____
D. Number of behaviors inappropriate to setting ____

Notes
Item D

Item E

E. Student-selected activity initiated after tasks were completed (yes-no)

****

Totals

A. _____

B. _____

C. _____

D. _____

E. _____ yes _____ no

Summary Item D

Summary Item E

APPENDIX F

Pre-Implementation/Post-Implementation Comparison Of The Students' Performance Within The Resource Room Setting

Expected Behaviors

	A		B			C			D			E		
	Pre/Post		Pre/Post/Comp.%[a]			Pre/Post/Comp.%[a]			Pre/Post/Comp.%[b]			Pre/Post/Comp.%[a]		
1.	2	2	1	1	.08	1	1	.43	1	0	.25	0	0	.07
2.	2	2	2	2	.21	0	0	.11	2	1	.13	0	0	.07
3.	2	2	2	2	.18	1	2	.21	1	0	.43	0	0	.07
4.	2	2	1	1	.09	1	1	.00	0	0	.00	0	0	.07
5.	2	2	2	2	.15	2	2	.33	1	1	.25	0	1	.27
6.	2	2	2	2	.20	2	2	.39	1	0	.09	1	1	.27
7.	2	2	1	2	.64	0	0	.17	2	0	.52	0	0	.07
8.	2	2	1	2	.17	1	2	.46	0	0	.33	0	0	.20
9.	2	2	2	2	.17	2	2	.20	1	0	.27	1	1	.20
10.	2	2	2	2	.15	1	1	.11	1	1	.08	0	0	.20
11.	2	2	2	2	.16	2	2	.24	1	1	.21	0	1	.27
12.	2	2	1	2	.66	0	1	.67	2	1	.24	0	0	.20
13.	2	2	1	2	.23	1	1	.43	1	0	.33	0	0	.27
14.	2	2	2	2	.21	1	2	.57	1	0	.27	0	1	.33
15.	2	2	2	2	.17	1	2	.85	1	0	.20	0	0	.20
16.	2	2	2	2	.16	2	2	.24	2	1	.24	1	1	.20
17.	2	2	1	2	.43	1	2	.49	1	1	.31	0	0	.20
18.	2	2	1	2	.81	1	2	.28	2	0	.52	0	0	.20
19.	2	2	2	2	.33	1	1	.70	2	1	.23	0	0	.20
20.	2	2	2	2	.15	2	2	.44	1	1	.21	1	1	.27

Note. Data provided for 20 student participants.
[a]Denotes individual percentage increases.
[b]Denotes individual percentage decreases.

BELMAR BOARD OF EDUCATION

1101 MAIN STREET, BELMAR, NEW JERSEY 07719

DR. LESTER W. RICHENS
Superintendent/Principal
201-681-2388

ROBERT T. BRENNEN
Board Secretary
201-681-8888

JOHN S. TAVIS
Supervisor of Instruction
201-681-2435

I grant permission for my son/daughter, _____,
to participate in a special program involving the utilization of learning styles data in the development of instructional strategies for Resource Room students.

The objectives of this program have been explained to me during a scheduled parent conference on November , 1983.
(Phone conferences are available if requested) .
The Learning Style Inventory Primary Version (Perrin, 1983) will be administered to lower grade Resource Room students prior to implementation. Upper grade Resource Room students will be administered the Learning Style Inventory (Dunn, R., Dunn, K. and Price, G., 1981).

I am aware that these instruments are designed to identify a student's preferred learning style. I am further aware that they are not projective, intellectual or scholastic measurements.

My child's name will not appear in any article or report relating to this program.

I have been informed that this program is being conducted in accordance with the policies of the Belmar Board of Education relating to educational research. The program will be implemented by Jean Marie Cassidy. Dr. Lester W. Richens, Superintendent/Principal, is acting as observer to this project.

_____ _____
Parent/Guardian Signature Date

Dear Parent/Guardian,

Due to the overwhelming response of those who attended the fall conferences, I am making this opportunity available to those students whose parents were unable to attend. If you would like a further explanation of the program, please call the school and leave your name and a number where I can reach you after 2:30.

Sincerely,

Jean Marie Cassidy

Jean Marie Cassidy

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APPENDIX H

Home Instructional Activity Worksheet

Name _____

Date _____

Activity _____

Instructions

Date of Completion _____

Comments (parents)

Comments (students)

Comments (writer)

Parent/Guardian Signature _____

APPENDIX I

Home Instructional Activities Completed By Resource Room Students

Students	Number of Activities Completed
1.	(8)
2.	(0)
3.	(8)
4.	(2)
5.	(0)
6.	(8)
7.	(6)
8.	(8)
9.	(6)
10.	(0)
11.	(8)
12.	(7)
13.	(6)
14.	(7)
15.	(8)
16.	(6)
17.	(6)
18.	(8)
19.	(6)
20.	(8)

Note. A total of 8 activities were assigned to each home learning environment.

STUDENT PROFILE

LEARNING STYLE INVENTORY - PRIMARY

NAME _____ GRADE __ TEACHER _____ DATE _____

SOUND

						SCORE
not acceptable	1	1	1	1	1	/5
acceptable	2	2	2	2	2	/5
RESPONSE						

LIGHT

						SCORE
low	1	1	1	1	1	/5
bright	2	2	2	2	2	/5
RESPONSE						

TEMPERATURE

						SCORE
cool	1	1	1	1	1	/5
warm	2	2	2	2	2	/5
RESPONSE						

DESIGN

						SCORE
formal	1	1	1	1	1	/5
informal	2	2	2	2	2	/5
RESPONSE						

SOCIOLOGICAL

								SCORE
alone	1	1			1	1	1	/5
adult		2	2	2	2		2	/5
peers	3		3	3		3	3	/5
RESPONSE								

STRUCTURE

						SCORE
needs	1	1	1	1	1	/5
needs little	2	2	2	2	2	/5
RESPONSE						

INTAKE

						SCORE
does not require	1	1	1	1	1	/5
requires	2	2	2	2	2	/5
RESPONSE						

TIME

						SCORE
morning	1		1	1	1	/4
afternoon	2	2		2	2	/4
evening		3	3	3	3	/4
RESPONSE						

RESPONSIBILITY & PERSISTENCE

is not	1	1	1	1	1	/5
is	2	2	2	2	2	/5
RESPONSE						

MOBILITY

						SCORE
does not require	1	1	1	1	1	/5
requires	2	2	2	2	2	/5
RESPONSE						

MOTIVATION

teacher								/5
adult				2			2	/5
self	3					3	3	/5
unmotivated	4	4	4	4	4	4	4	/5
RESPONSE								

PERCEPTION

tactual									/5
auditory									/5
visual									/5
kinesthetic			4			4	4	4	/5
RESPONSE									

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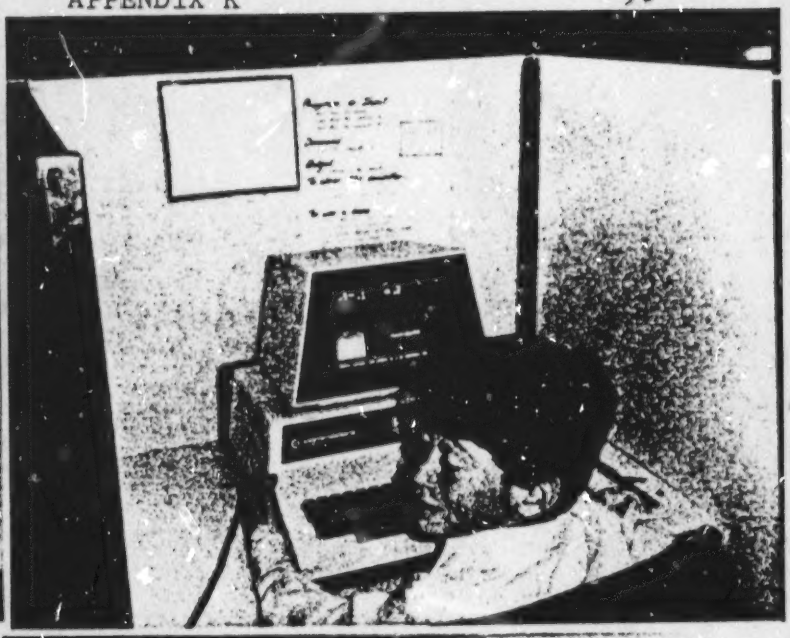

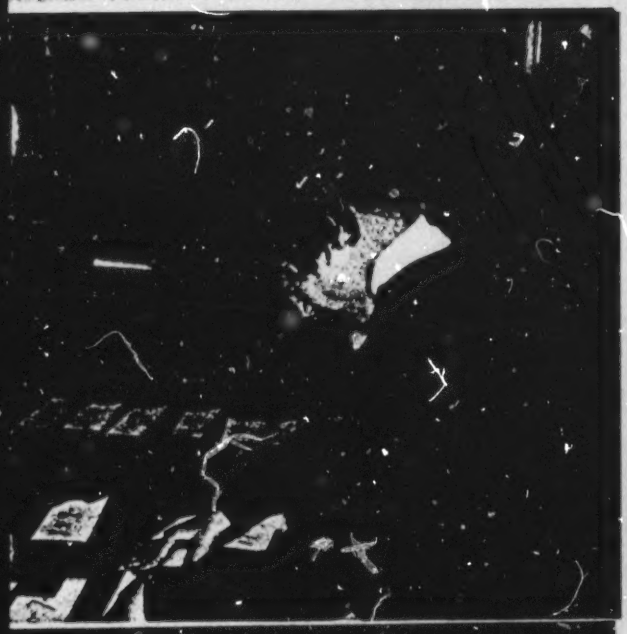

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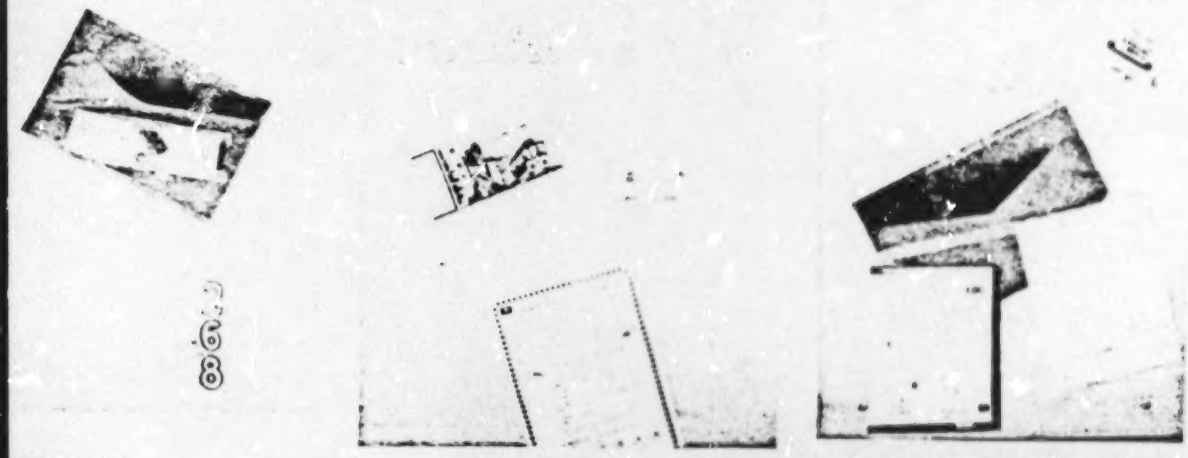

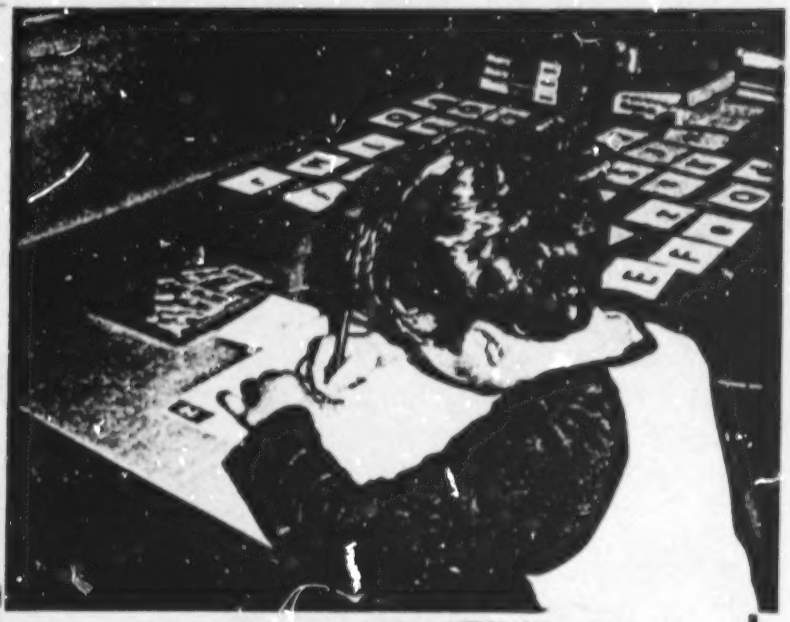

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